### (19) World Intellectual Property Organization

International Bureau



## 

(43) International Publication Date 22 September 2005 (22.09.2005)

**PCT** 

# (10) International Publication Number WO 2005/088087 A1

(51) International Patent Classification?: 3/035, 9/00

F01N 3/025,

(21) International Application Number:

PCT/JP2005/004730

(22) International Filing Date: 10 March 2005 (10.03.2005)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 2004-068989

11 March 2004 (11.03.2004) JP

(71) Applicant (for all designated States except US): TOY-OTA JIDOSHA KABUSHIKI KAISHA [JP/JP]; 1, Toy-ota-cho, Toyota-shi, Aichi, 4718571 (JP).

(72) Inventors; and

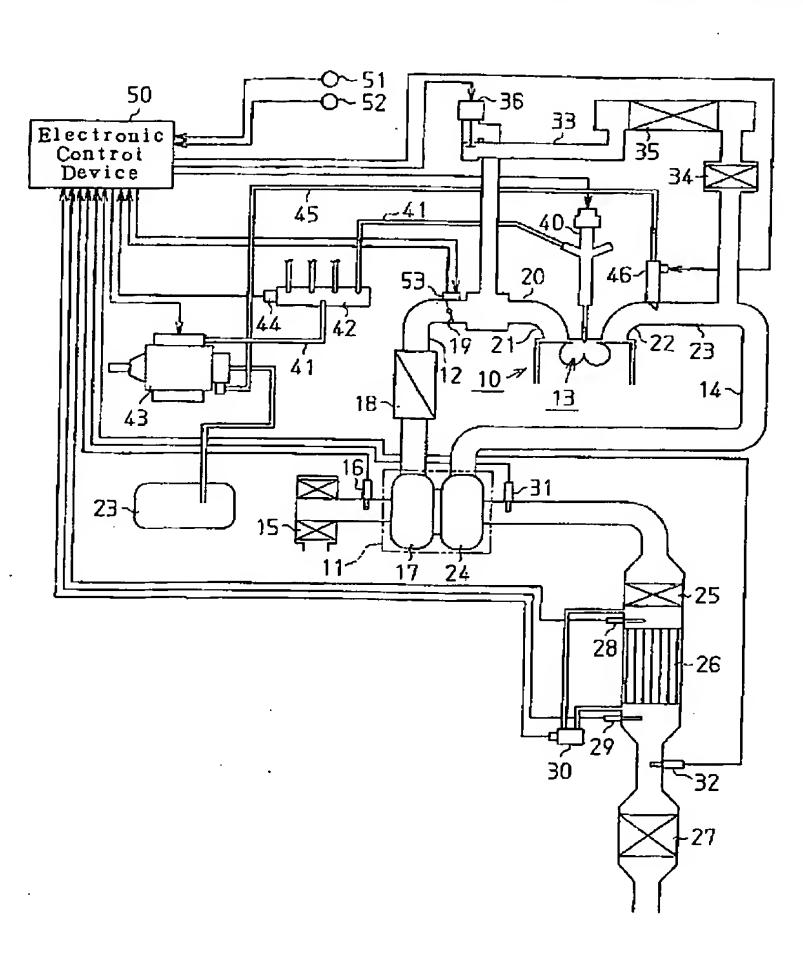
(75) Inventors/Applicants (for US only): YOKOI, Tatsuhisa

[JP/JP]; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, 1, Toyota-cho, Toyota-shi, Aichi, 4718571 (JP). OTSUBO, Yasuhiko [JP/JP]; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, 1, Toyota-cho, Toyota-shi, Aichi, 4718571 (JP). MATSUNO, Shigehiro [JP/JP]; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, 1, Toyota-cho, Toyota-shi, Aichi, 4718571 (JP). MATSUOKA, Hiroki [JP/JP]; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, 1, Toyota-cho, Toyota-shi, Aichi, 4718571 (JP).

- (74) Agents: ONDA, Hironori et al.; 12-1, Ohmiya-cho 2-chome, Gifu-shi, Gifu, 5008731 (JP).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH,

[Continued on next page]

(54) Title: EXHAUST PURIFYING APPARATUS FOR INTERNAL COMBUSTION ENGINE



(57) Abstract: exhaust purifying apparatus for an internal combustion engine having a DPNR converter (26), a fuel adding device (46), and an electronic control device (50) is provided. The DPNR converter (26) is located in an exhaust passage (14) of the internal combustion engine (10). The DPNR converter (26) traps particulate matter in exhaust gas. The fuel adding device (46) adds fuel to exhaust gas that passes through the DPNR converter (26). The electronic control device (50) estimates a combustion rate of particulate matter in the DPNR converter (26) in a state where the fuel adding device (46) adds fuel to the exhaust gas. Based on the estimated combustion rate, the electronic control device (50) sets a manner of adding fuel by the fuel adding device (46). As a result, the exhaust purifying apparatus suppresses excessive temperature increase of a DPNR converter (26) to which fuel is added.

## WO 2005/088087 A1



PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,

SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.